Apparatus for Seebeck Coefficient Measurements of Lithium-
7 and Lithium-6  

MARYANN TUNG, VIJAY SURLA, WENYU XU, DAVID 
RUZIC, University of Illinois at Urbana Champaign, DENNIS MANSFIELD, 
Princeton Plasma Physics Lab — Lithium, owing to its many advantages, is of 
immense interest to the fusion community for its use as plasma facing component 
(PFC) material. Recently, in the center for plasma material interactions, it was 
shown that the flow of liquid lithium in the presence of magnetic fields is dominated 
by thermoelectric Magnetohydrodynamic (TEMHD) flow. To accurately describe 
these observed results, the knowledge of the thermoelectric properties of lithium 
is essential. To this end, an apparatus for determining the Seebeck Coefficient of 
lithium was developed. Using this apparatus, the Seebeck Coefficient of lithium as 
a function of temperature is obtained. The Seebeck Coefficient of Lithium-7, with 
respect to stainless steel, is found to gradually increase from 16 μV/K to 35 μV/K, 
as the temperature is raised from 300 K to 500 K, which is in good agreement with 
published values [1]. Furthermore, the Seebeck coefficient of Li-6, for the first time, 
was measured and the results are presented.